

ABSTRACT

METHOD TO PREVENT SATURATION IN POWER AMPLIFIER CONTROL LOOP

5 When a power amplifier control loop operates near or in saturation, the quality of the output
signal can be degraded and an over current condition can occur. To prevent this, the output
signal of the power amplifier is detected, converted to digital, and then converted into the
frequency spectrum by means of a Fast Fourier Transform. The spectral characteristics of the
output signal are analyzed to determine if the power amplifier control loop is approaching or
10 operating in saturation mode. This determination is made by looking at the power of the
output signal at various frequencies. If the output at these frequencies exceeds a threshold
value, the power amplifier control loop is approaching saturation. In this situation, the output
of the power amplifier can be adjusted to prevent loop saturation. This can be accomplished
by reducing the supply voltage to the power amplifier or adjusting the bias voltage.

15